**IN THE UNITED STATES DISTRICT COURT**
**FOR THE WESTERN DISTRICT OF TEXAS**
**WACO DIVISION**

| | | |
|---|---|---|
| CIRCUIT VENTURES LLC, | § | |
| | § | |
| Plaintiff, | § | Case No: 6:20-cv-13 |
| | § | |
| vs. | § | |
| | § | |
| EMERSON ELECTRIC CO. | § | JURY TRIAL DEMANDED |
| | § | |
| Defendant. | § | |
| | § | |

**ORIGINAL COMPLAINT FOR PATENT INFRINGEMENT**

Plaintiff Circuit Ventures LLC ("Plaintiff" or "CV"), by and through its attorneys, files this Original Complaint against Emerson Electric Co. ("Defendant" or "Emerson") for infringement of United States Patent Nos. 7,256,683 ("the '683 Patent"); 7,834,744 ("the '744 Patent"); 8,816,869 ("the '869 Patent"); and 8,912,893 ("the '893 Patent").

**PARTIES AND JURISDICTION**

1. This is an action for patent infringement under Title 35 of the United States Code. Plaintiff is seeking injunctive relief as well as damages.

2. Jurisdiction is proper in this Court pursuant to 28 U.S.C. §§ 1331 (Federal Question) and 1338(a) (Patents) because this is a civil action for patent infringement arising under the United States patent statutes.

3. Plaintiff is a Delaware LLC, with an office address of 825 Watters Creek Blvd., Building M, Suite 250, Allen, TX 75013.

4. Upon information and belief, Defendant is a Missouri corporation with a principal address of 8000 West Florissant Avenue, P.O. Box 4100. St. Louis MO 63136. This Court has

personal jurisdiction over Defendant because Defendant has committed, and continues to commit, acts of infringement in this District, has conducted business in this District, and/or has engaged in continuous and systematic activities in this District.

5. Upon information and belief, Defendant's instrumentalities that are alleged herein to infringe were and continue to be used, imported, offered for sale, and/or sold in this District.

## VENUE

6. On information and belief, venue is proper in this District pursuant to 28 U.S.C. § 1400(b) because acts of infringement are occurring in this District and Defendant has a regular and established place of business in this District at, for example, 1100 W Louis Henna Blvd, Round Rock, TX 78681.

## COUNT I
## (INFRINGEMENT OF UNITED STATES PATENT NO. 7,256,683)

7. Plaintiff incorporates paragraphs 1 through 6 herein by reference.

8. This cause of action arises under the patent laws of the United States and, in particular, under 35 U.S.C. §§ 271, et seq.

9. Plaintiff is the owner by assignment of the '683 Patent with sole rights to enforce the '683 patent and sue infringers.

10. A copy of the '683 Patent, titled "Circuit Monitoring Device," is attached hereto as Exhibit A.

11. The '683 Patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

12. The claims of the '683 Patent recite a flexible system that can reproduce the function of a typical security management system. '683 Patent, 3:14-16. Typical systems are proprietary and components from one system will not work with components from another

system. Additionally, any modifications to the hardware or software of a typical system usually must be done by the original manufacturer. *Id*., 1:16-24. Further, each manufacturer of typical security management system equipment specifies a particular value of field resistance for the last field device in a line of devices. *Id*., 2:5-7. The problems with typical systems are especially apparent when an owner needs to upgrade or modify their system. *Id*., 2:26-38.

> Because each line connected to the system includes a field resistor of a particular value, the owner is forced to return to the original supplier of the SMS in order to provide an upgrade. Alternatively, the system owner must rewire each of the lines connected to the system and replace the field resistor with a different value, as specified by the supplier of the new SMS control unit. Where the resistor is built into the field device it cannot be changed and the system owner is forced to also replace each of the devices if it wants to change to a different brand of SMS control unit.

*Id*., 2:27-38. And, typical systems include an operator interface which is proprietary and cannot be changed by the user. *Id*., 2:38-45. The system claimed in the '683 Patent allows for the retrofit of existing security management systems while using the existing circuity wiring of the typical legacy system. *Id*., 4:9-16.

13. Claim 8, for example, recites:

> Apparatus for monitoring the status of a measurable parameter of an electrical circuit, the apparatus comprising:
>
> measurement means for measuring the magnitude of said parameter and generating an analog signal representative of said magnitude;
>
> analog to digital conversion means for generating from said analog signal a count value representative of said magnitude;
>
> comparison means for comparing said count value with a threshold value and generating from the comparison a status signal, said status signal having two possible values which thereby indicates whether the count value is greater than or less than said threshold value;
>
> transmission means for transmitting said status signal via a communications network to a display; and

display means for displaying an indication of said assigned status.

'683 Patent, 9:48-64.

14. The components recited in the claims (such as in claim 8 for example) are configured, such that they operate in a non-conventional manner.

15. The components recited in the claims (such as in claim 8 for example) are configured so as to allow a user to set customized ranges of values to be set as parameters of end-of-line modules (i.e., parameters of a circuit). Generic processors cannot provide this functionality. As stated in the specification, "[t]he various threshold values . . . are preferably configured as variables which may be set as parameters of the EOL module. In this way, the EOL module may be configured to operate with a wide range of field resistors, thus enabling the EOL module to be retrofitted to a wide range of field circuits wherein the series and field resistors . . . already exist and cannot readily be changed." '683 Patent, 7:1-8; see also *Id*., 7:19-39 and 7:41-53.

> Such . . . systems using EOL modules according to the present invention may be readily retrofitted to existing system, while utilizing the existing wiring regardless of existing resistance values. A system built in this way, either as an original installation or as a retrofit, provides a flexible and relatively inexpensive option which eliminates dependency on proprietary hardware and software.

*Id*., 8:27-34. Thus, the '683 Patent specification clarifies that the claimed components, performing the claimed functionality, are not conventional or generic.

16. Collectively, the claimed embodiments in the '683 Patent provide new solutions to problems of traditional security monitoring systems. These solutions are enabled by non-generic components functioning in a non-conventional manner.

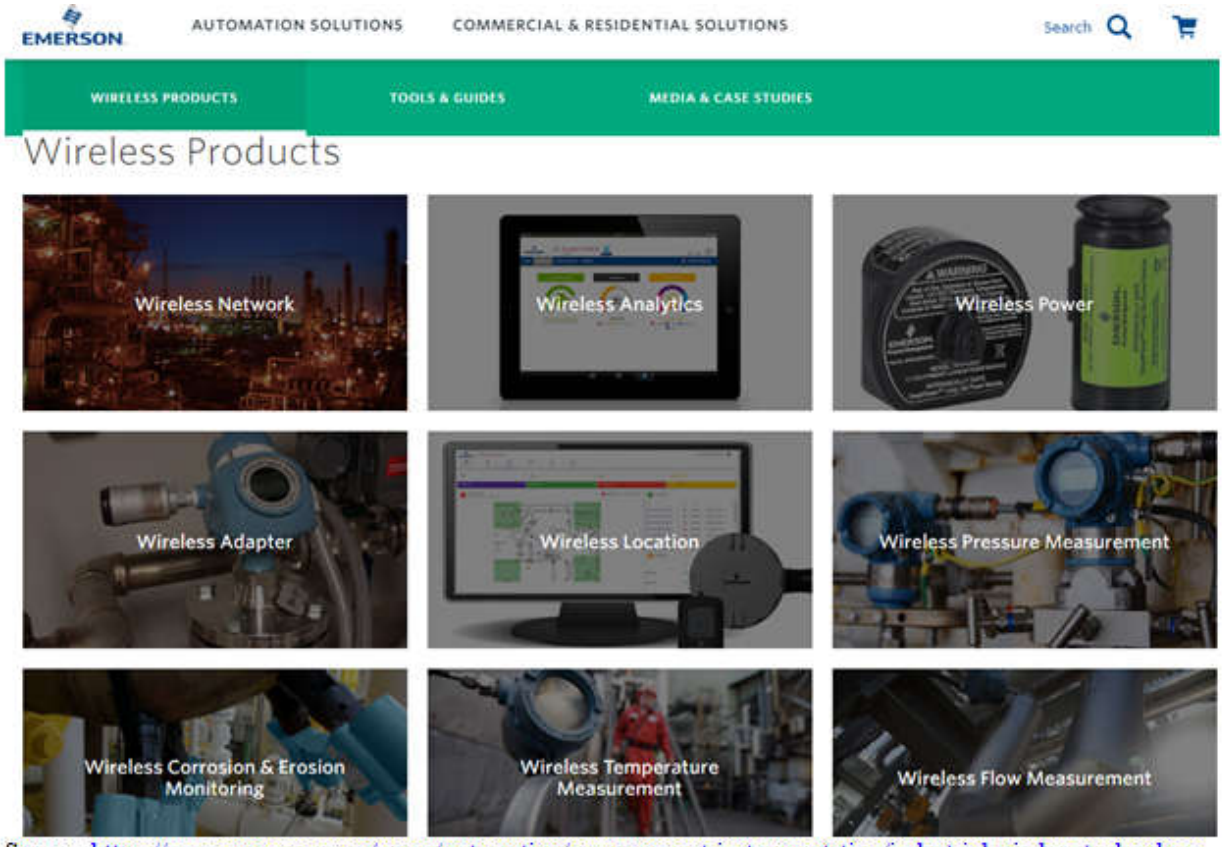
17. The '683 Patent solves a problem with the art that is rooted in computer technology. The '683 Patent does not merely recite the performance of some business practice

known from the pre-Internet world along with the requirement to perform it on the Internet.

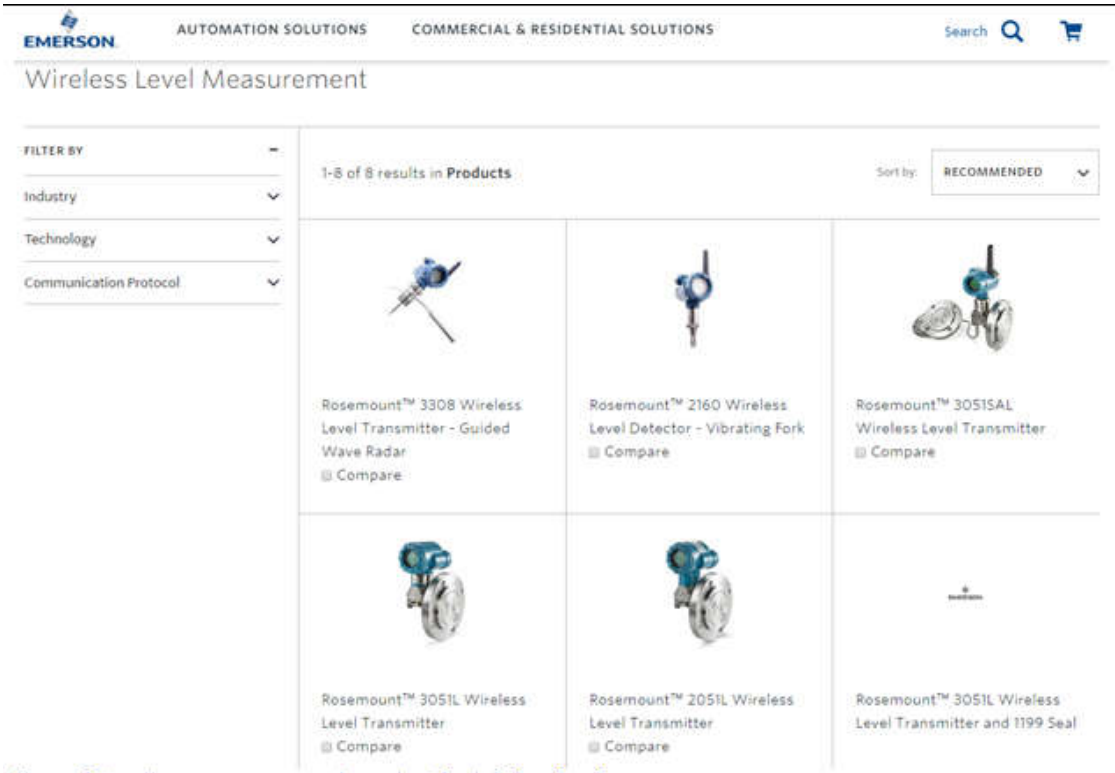
18. Upon information and belief, Defendant has infringed and continues to infringe one or more claims, including at least Claim 8 of the '683 Patent by making, using, importing, selling, and/or offering for sale, field devices, wireless systems, circuit monitoring devices, and/or components for such systems, which are covered by one or more claims of the '683 Patent. Defendant causes infringement by its customers and users and encourages the use of accused devices through distribution, support and customer services. Defendant has infringed and continues to infringe the '683 Patent directly in violation of 35 U.S.C. § 271.

19. Regarding Claim 8, Defendant makes, uses, sells and/or offers for sale an apparatus for monitoring the status of a measurable parameter of an electrical circuit. For example, Emerson provides a range of Industrial Wireless Technology products (such as Wireless Pressure Management products, Wireless Level Measurement products (used herein as exemplary products), Wireless Temperature Measurement products, etc.) for monitoring a circuit. Further, Emerson's Wireless Level Measurement products (such as Rosemount 3308 Wireless Level Transmitter - Guided Wave Radar, Rosemount 2160 Wireless Level Detector - Vibrating Fork, etc.) monitor the fill level of a medium (such as milk, water, etc.) using sensors (such as vibration sensor, conductive sensor, capacitive sensor, time domain reflectometry sensor (TDR sensor), etc.) which measure piezoelectric vibration, conductivity, capacitance, propagation delay, waveform reflections, strength of a signal ("parameter of an electrical circuit"). Infringing products and certain aspects of this element are illustrated in the screenshots below and/or in those provided in connection with other allegations herein.

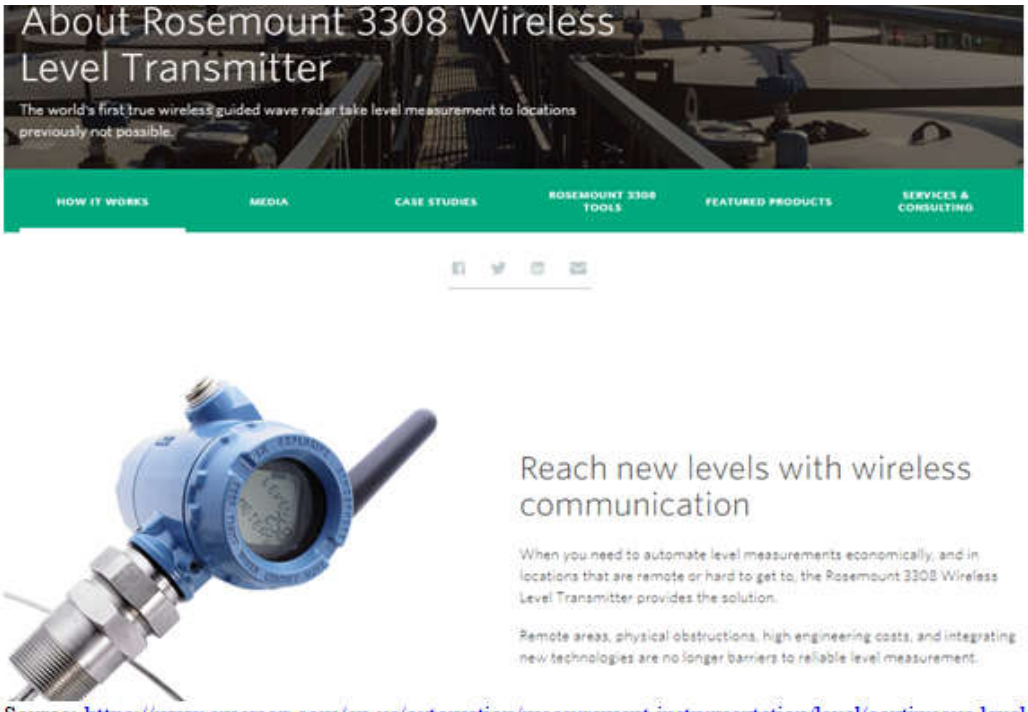

Source: https://www.emerson.com/en-us/automation/measurement-instrumentation/industrial-wireless-technology




Source: https://www.emerson.com/en-us/automation/measurement-instrumentation/industrial-wireless-technology




Source:https://www.emerson.com/en-us/catalog/wireless-level-measurement?fetchFacets=true#facet:&facetLimit:&productBeginIndex:0&orderBy:&pageView:grid&minPrice:&maxPrice:&pageSize:&




Source: https://www.emerson.com/en-us/automation/measurement-instrumentation/level/continuous-level-measurement/about-guided-wave-radar/rosemount-3308-wireless-level-transmitter

### 2.1.8 Probe length

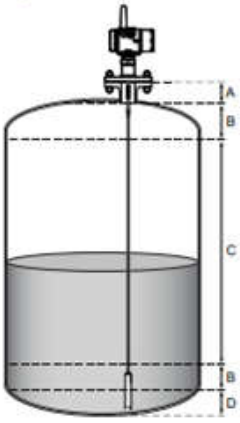
The probe length is the distance between the Upper Reference Point and the end of the probe. If a weight is used at the end of the probe it shall be included.

## 2.2 Measuring range

The measuring range depends on probe type, dielectric constant of the product and installation environment, and is limited by the Blind Zones at the very top and bottom of the probe. In the Blind Zones, the accuracy exceeds ±1.18 in. (30 mm), and measurements may not be possible. Measurements close to the Blind Zones will have reduced accuracy.

Figure 2-4 illustrates how the measuring range is related to the Blind Zones and the areas with reduced accuracy.

**Figure 2-4: Blind Zones and Areas with Reduced Accuracy**



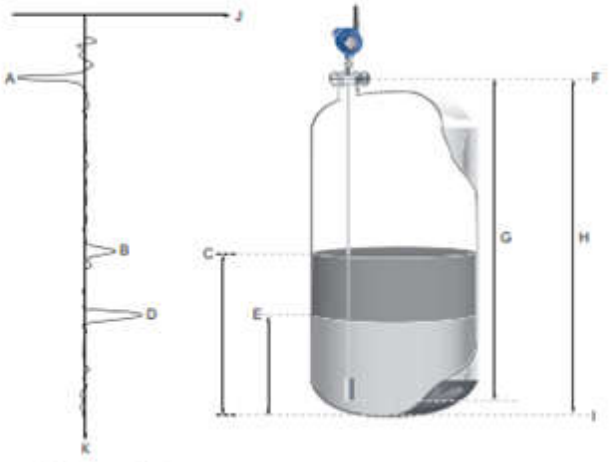

*A. Upper Blind Zone*
*B. Reduced Accuracy*
*C. Recommended Measuring Range*
*D. Lower Blind Zone*

Source: https://www.emerson.com/documents/automation/manual-rosemount-3308-series-wireless-guided-wave-radar-3308a-en-77240.pdf, page 14

## 2.1 Theory of operation

The Rosemount™ 3308 Series is the first true wireless level transmitter that is based on the Time Domain Reflectometry (TDR) principle. Low power nano-second-pulses are guided along a probe submerged in the process media. When a pulse reaches the surface of the material it is measuring, part of the energy is reflected back to the transmitter, and the time difference between the generated and reflected pulse is converted into a distance from which the total level or interface level is calculated (see Figure 2-1).

**Figure 2-1: Guided Wave Radar Operating Principle**

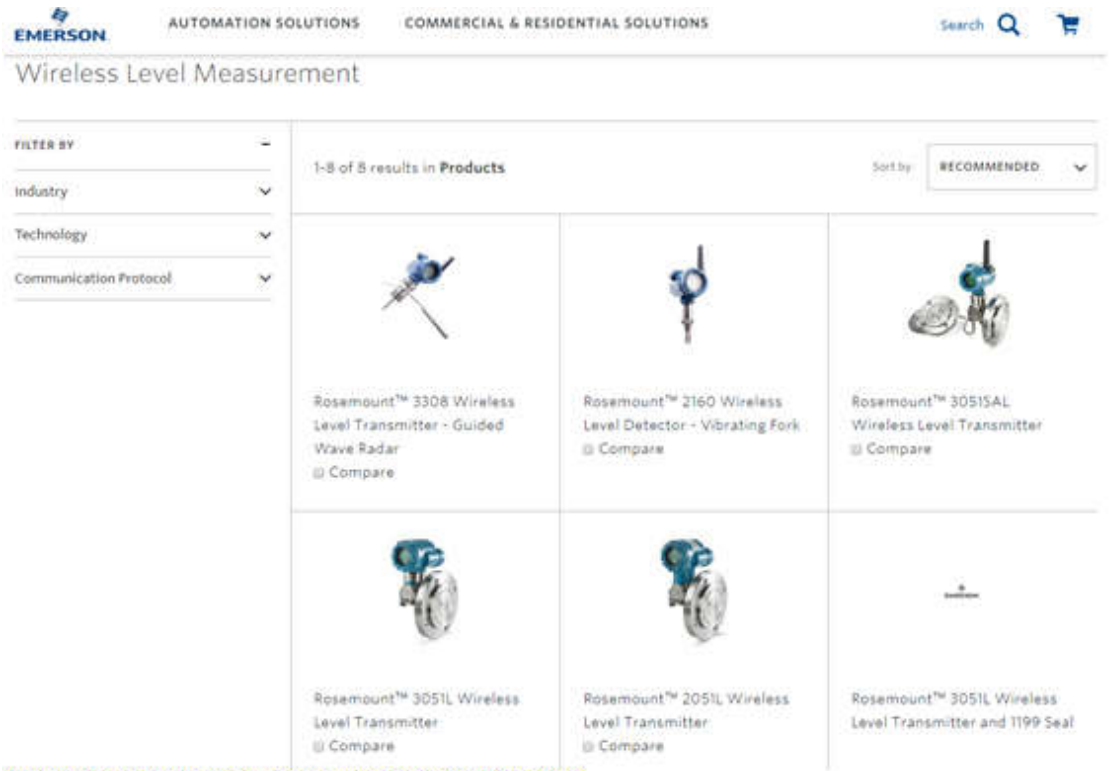



A. *Reference Peak*
B. *Product Surface Peak*
C. *Product Level*
D. *Interface Peak*
E. *Interface Level*
F. *Upper Reference Point*
G. *Probe Length*
H. *Tank Height*
I. *Zero Reference Point*
J. *Signal Amplitude*
K. *Time*

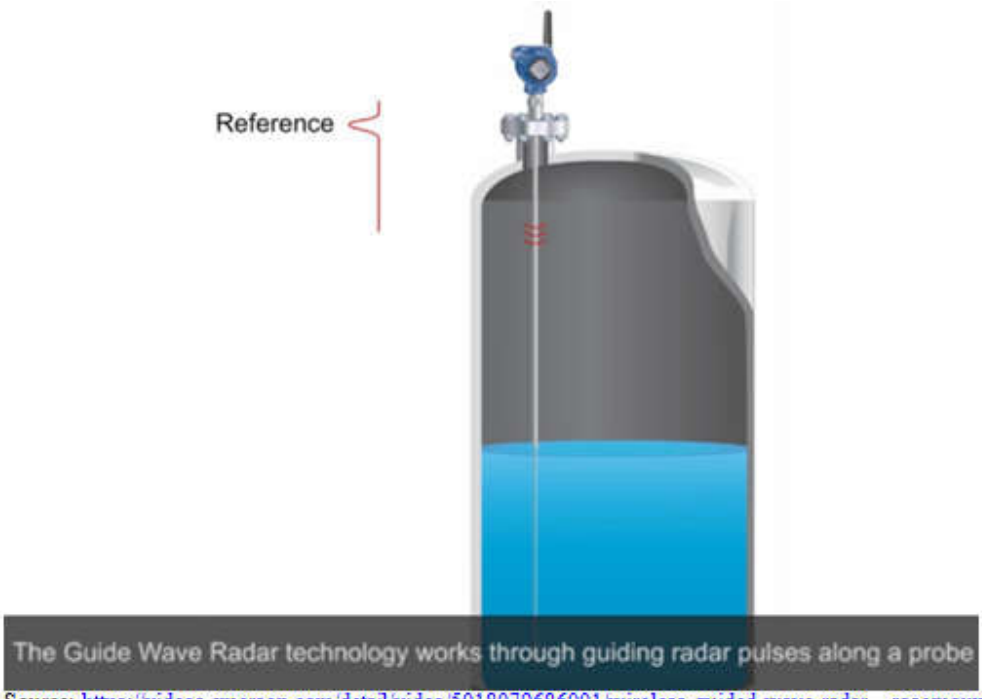
Source: https://www.emerson.com/documents/automation/manual-rosemount-3308-series-wireless-guided-wave-radar-3308a-en-77240.pdf, page 11

20. The infringing products provide a measurement means for measuring the magnitude of said parameter and generating an analog signal representative of said magnitude. For example, Rosemount 3308 Wireless Level Transmitter comprises of at least one of the sensors (such as vibration sensor, conductive sensor, capacitive sensor, time domain reflectometry sensor (TDR sensor), etc.) and measure the electrical parameters (such as resistance, conductivity, capacitance, voltage, frequency, propagation delay, waveform reflections, strength of a signal and/or current) and generates an analog signal (voltage and/or current) which represents the magnitude of the sensor data.

Further, the Analog-to-Digital Converter (ADC) block after the microwave module/sensor block indicates that the output of the microwave module/sensor is analog and is fed as an input to the ADC. Certain aspects of this element are illustrated in the screenshots below and/or in those provided in connection with other allegations herein.

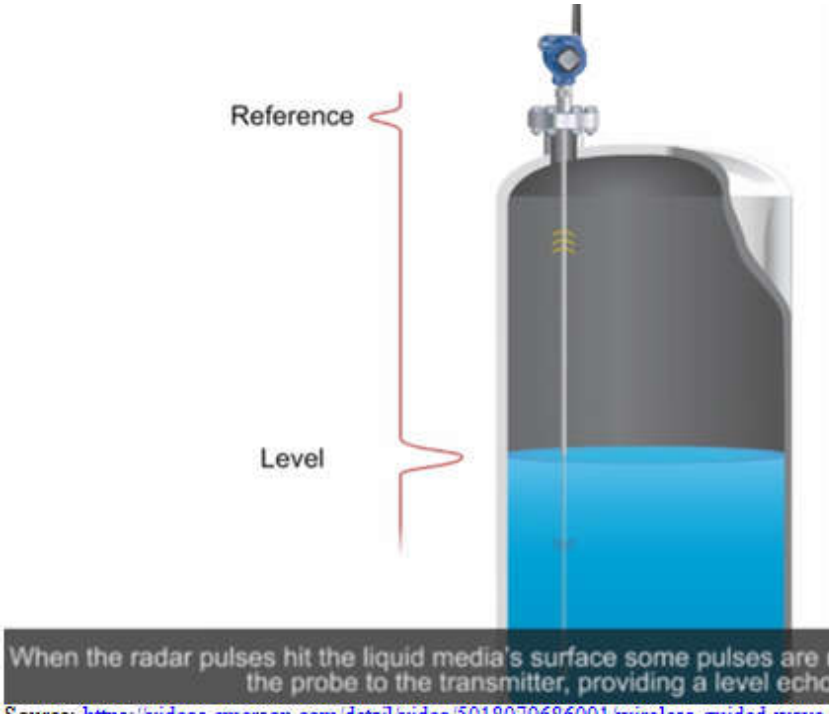



Source:https://www.emerson.com/en-us/catalog/wireless-level-measurement?fetchFacets=true#facet:&facetLimit:&productBeginIndex:0&orderBy:&pageView:grid&minPrice:&maxPrice:&pageSize:&



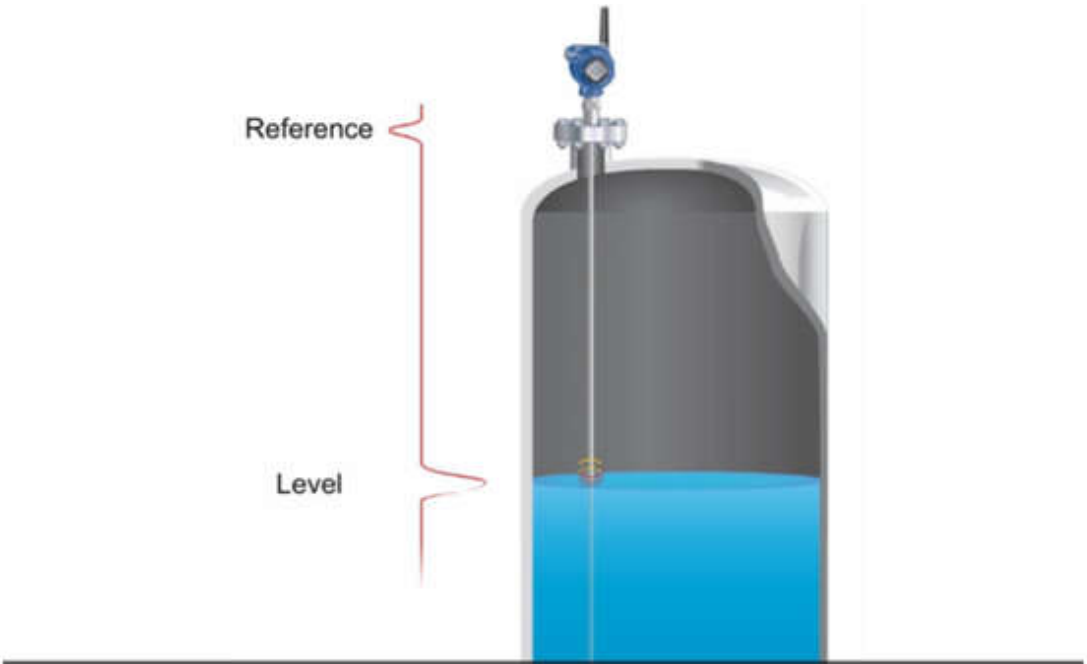

The Guide Wave Radar technology works through guiding radar pulses along a probe

Source: https://videos.emerson.com/detail/video/5018079686001/wireless-guided-wave-radar---rosemount-3308-level-measurement




When the radar pulses hit the liquid media's surface some pulses are reflected back along the probe to the transmitter, providing a level echo

Source: https://videos.emerson.com/detail/video/5018079686001/wireless-guided-wave-radar---rosemount-3308-level-measurement




Source: https://videos.emerson.com/detail/video/5018079686001/wireless-guided-wave-radar---rosemount-3308-level-measurement

**18.5.3 Guided wave radar**

What is the principle of operation for guided wave radar?

The Rosemount 3300, 3308 and 5300 series use TDR (Time Domain Reflectometry) technology which means the transmitter sends out radar pulses. The actual level measurement is a function of the time taken from when the electromagnetic signal is emitted to the time at which the echo from the media is received.

What is the frequency of guided wave radar?

Radar frequency usually refers to carrier-frequency. Guided wave radar does not use a carrier frequency like non-contacting radar and therefore it is not relevant to talk about the frequency.

How do you interpret the electrical distance in the tank plot in Radar Configuration Tools (RCT) and Rosemount Radar Master (RRM)?

The electrical distance that is shown on the x-axis of the tank plot is used when comparing the distance

Source: https://www.emerson.com/documents/automation/-engineer-s-guide-to-level-measurement-2019-edition-en-77708.pdf, page 272

measured by the transmitter and the real distance.

Due to the influence from the dielectric properties on the wave propagation speed, the electrical distance values have to be adjusted when the wave is not traveling through air. The electrical length shows the distance with the assumption that the wave travels in air. Practically this means that the distance to the first level peak will have the same electrical distance and real distance. When the waves continue down through the media, the real length from the surface to the end of the probe or to the interface level can be calculated through the formula below:

$$\text{Real distance} = \frac{\text{Electrical distance}}{\sqrt{\text{DK of media}}}$$

The distance to the upper product can be read straight from the plot while the interface distance has to be calculated using the formula above.

Source: https://www.emerson.com/documents/automation/-engineer-s-guide-to-level-measurement-2019-edition-en-77708.pdf, page 272

What outputs are available?

Measurement data is transmitted as an analog mA signal with a superimposed digital HART signal (Rosemount 3300/5300) or Foundation™ Fieldbus signal (Rosemount 5300). The HART signal can be used in multidrop mode. By sending the digital HART signal to the optional HART Tri-loop, it is possible to have up to three additional 4-20 mA analog signals. The HART signal can also be used with an Emerson THUM for wireless transmission of the HART data. Modbus communication is also available for the Rosemount 3300 and 5300.

Source: https://www.emerson.com/documents/automation/-engineer-s-guide-to-level-measurement-2019-edition-en-77708.pdf, page 273

### 1.5.4 Impact on level measurements

Signal reflection

In radar level measurement, the measured media needs to provide sufficient reflection of the radar signal. In general, the higher the dielectric constant, the stronger the reflected signal. Other factors do come into play however. The further away the target is, the stronger the reflection needs to be in order to have a sufficient amount of the signal returned to the radar transmitter. Agitation can cause a portion of the signal to be "scattered" and therefore reduces the amount of signal that is received by the radar device. If agitation is present with a low dielectric compound, then other reflections in the vessel could become stronger than the intended liquid level measurement.

The reflectivity of a compound is predictable and is a function of its dielectric permittivity. It can be determined by:

$$R = (\sqrt{\varepsilon_r} - 1)^2 / (\sqrt{\varepsilon_r} + 1)^2$$

where R = reflection and $\varepsilon_r$ = relative dielectric permittivity

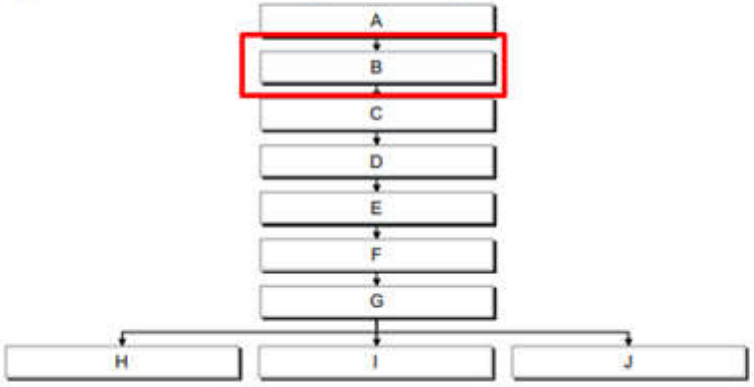
Figure 1.5.2 shows this reflectivity and permittivity relationship. As the dielectric permittivity increases, the amount of signal reflection also increases. In the chart below, example A (blue line) shows that at a relative permittivity of 4, about 11% of the signal is reflected back and about 10 dB of power is lost. In example B, (purple line), at a higher dielectric such as 30, close to 50% of the signal is reflected back and less power is lost (-3 db).

Source: https://www.emerson.com/documents/automation/-engineer-s-guide-to-level-measurement-2019-edition-en-77708.pdf, page 23

The reflectivity of the product is a key parameter for measurement performance. A high dielectric constant of the media gives better reflection and a longer measuring range.

See Figure 2-2 for a schematic overview of the signal processing.

**Figure 2-2: Flowchart of the Signal Processing**




A. *Microwave module*
B. *A/D converter*
C. *Peak search*
D. *Peak interpolation*
E. *Echo identifier*
F. *Distance filtering*
G. *Variable calculation*
H. *Aout handler*
I. *LCD handler*
J. *HART®*

Source: https://www.emerson.com/documents/automation/manual-rosemount-3308-series-wireless-guided-wave-radar-3308a-en-77240.pdf, page 12

21. The infringing products provide an analog to digital conversion means for generating from said analog signal a count value representative of said magnitude. For example, Rosemount 3308 Wireless Level Transmitter comprises an analog to digital conversion means to convert the analog signal from the sensor to a count value which represents the magnitude of the sensor data. Certain aspects of this element are illustrated in the screenshots below and/or in those provided in connection with other allegations herein.

22. The infringing products provide a comparison means for comparing said count value with a threshold value and generating from the comparison a status signal, said status signal having two possible values which thereby indicates whether the count value is greater than or less than said threshold value. For example, Rosemount 3308 Wireless Level Transmitter

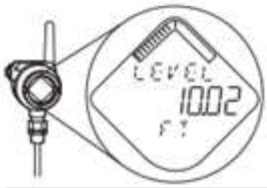
comprises a comparison means which compares the count value against a defined limit ("threshold") and switches the analog signal accordingly. The status signal representing the level has at least two possible values (such as level is below the defined level and the level is above the defined level). Certain aspects of this element are illustrated in the screenshots below and/or in those provided in connection with other allegations herein.

**Table 6-5: Advisory Alerts (A:)** ***(continued)***

| Message | Description | Recommended actions |
|---|---|---|
| HiHi Level Alert | The level is above the defined limit. | 1. Bring the system to a safe state.<br>2. Verify that the level is within specified limits.<br>3. Reconfirm the level alert limit.<br>4. If not needed, disable this alert. |
| Hi Level Alert | The level is above the defined limit. | 1. Bring the system to a safe state.<br>2. Verify that the level is within specified limits.<br>3. Reconfirm the level alert limit.<br>4. If not needed, disable this alert. |
| Lo Level Alert | The level is below the defined limit. | 1. Bring the system to a safe state.<br>2. Verify that the level is within specified limits.<br>3. Reconfirm the level alert limit.<br>4. If not needed, disable this alert. |
| LoLo Level Alert | The level is below the defined limit. | 1. Bring the system to a safe state.<br>2. Verify that the level is within specified limits.<br>3. Reconfirm the level alert limit.<br>4. If not needed, disable this alert. |

Source: https://www.emerson.com/documents/automation/manual-rosemount-3308-series-wireless-guided-wave-radar-3308a-en-77240.pdf, page 112

**Figure A-7: Device Display**




## Output units

- Level, Interface, and Distance: ft, inch, m, cm, or mm
- Volume: $ft^3$, $inch^3$, US gals, Imp gals, barrels, $yd^3$, $m^3$, or liters
- Temperature: °F, °C

## Output variables

**Table A-3: Output Variables**

| Variable | LCD display | PV, SV, TV, QV |
|---|---|---|
| Level | ✓ | ✓ |
| Distance | ✓ | ✓ |
| Surface Signal Strength | N/A | ✓ |
| Total Volume | ✓ | ✓ |
| Interface Level (1) | ✓ | ✓ |
| Interface Distance (1) | ✓ | ✓ |
| Interface Signal Strength (1) | N/A | ✓(2) |
| Upper Product Thickness (3) | ✓ | ✓ |
| Electronics Temperature | ✓ | ✓(2) |
| Signal Quality | ✓ | ✓(2) |
| Supply Voltage | ✓ | ✓(2) |
| % of Range | ✓ | ✓(2) |

Source: https://www.emerson.com/documents/automation/manual-rosemount-3308-series-wireless-guided-wave-radar-3308a-en-77240.pdf, page 150

- Incorrect level readings (see Table 6-6)
- Incorrect or missing interface level reading (see Table 6-7)
- Power module troubleshooting (see Table 6-8)
- Device display troubleshooting (see Table 6-9)
- Wireless network troubleshooting (see Table 6-10)

**Table 6-6: Incorrect level readings**

| Symptom | Possible cause and recommended actions |
|---|---|
| The level readings do not correspond to a reference measurement, for example a handgauged value. | • Check the Tank Height parameter, refer to Tank height.<br>• Check Thresholds, refer to Adjust thresholds.<br>• Run Verify Level, see Run verify level.<br>• Check transmitter configuration. Run Basic Setup, refer to Configure using basic setup. |
| There is no level reading. | • The tank is empty. No action is needed.<br>• Check Thresholds, refer to Adjust thresholds. |
| Level spikes or level is suddenly reported as full or empty. | • Check the Upper Product Dielectric Constant, see Upper product dielectric constant.<br>• The transmitter is configured with wrong Probe Type, refer to Probe type.<br>• Check Thresholds, see Adjust thresholds.<br>• The transmitter has locked on disturbing obstacles at top of the tank. See Handling disturbances at the top of the tank for recommended actions.<br>• The surface is turbulent. Set the Performance Mode to High to get a stable measurement signal, refer to Resolve noise or weak surface echoes. |
| Level stuck in full. | • The tank is full. Check the product level.<br>• Check Thresholds, see Adjust thresholds.<br>• The transmitter has locked on disturbing obstacles at top of the tank. See Handling disturbances at the top of the tank for recommended actions.<br>• The transmitter is configured with wrong Probe Type, refer to Probe type.<br>• The reference peak is not detected since it is weaker than the Reference Threshold. Adjust Reference Threshold to an appropriate value so that reference peak is not filtered out. Refer to Adjust thresholds. |

Source: https://www.emerson.com/documents/automation/manual-rosemount-3308-series-wireless-guided-wave-radar-3308a-en-77240.pdf, page 113

23. The infringing products provide a transmission means for transmitting said status signal via a communications network to a display. For example, Rosemount 3308 Wireless Level Transmitter comprises an integrated display to which the status signal is transmitted using a transmission means (such as wired circuits). Further, Rosemount 3308 Wireless Level Transmitter also provides a communication module ("transmission means") to transmit the status signal via a network (Emerson Wireless) to a display using an AMS Device Manager, creating a visual indication of the status signal or the sensor data. Certain aspects of this element are illustrated in the screenshots provided in connection with other allegations herein.

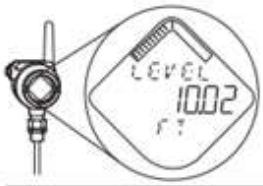
# Display and configuration

## LCD display

- Toggles between selected output variables
- Shows diagnostic information (alerts)
- Display updates at each wireless update

Source: https://www.emerson.com/documents/automation/manual-rosemount-3308-series-wireless-guided-wave-radar-3308a-en-77240.pdf, page 149

**Figure A-7: Device Display**




## Output units

- Level, Interface, and Distance: ft, inch, m, cm, or mm
- Volume: $ft^3$, $inch^3$, US gals, Imp gals, barrels, $yd^3$, $m^3$, or liters
- Temperature: °F, °C

## Output variables

**Table A-3: Output Variables**

| Variable | LCD display | PV, SV, TV, QV |
|---|---|---|
| Level | ✓ | ✓ |
| Distance | ✓ | ✓ |
| Surface Signal Strength | N/A | ✓ |
| Total Volume | ✓ | ✓ |
| Interface Level (1) | ✓ | ✓ |
| Interface Distance(1) | ✓ | ✓ |
| Interface Signal Strength(1) | N/A | ✓(2) |
| Upper Product Thickness(3) | ✓ | ✓ |
| Electronics Temperature | ✓ | ✓(2) |
| Signal Quality | ✓ | ✓(2) |
| Supply Voltage | ✓ | ✓(2) |
| % of Range | ✓ | ✓(2) |

Source: https://www.emerson.com/documents/automation/manual-rosemount-3308-series-wireless-guided-wave-radar-3308a-en-77240.pdf, page 150

## Device display screen messages

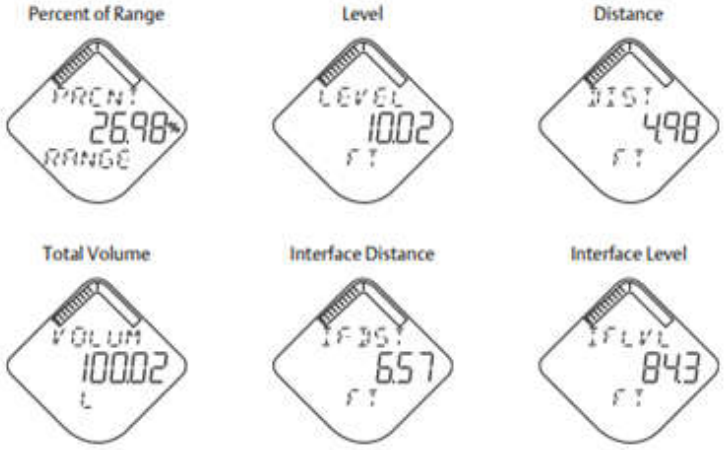
The device display can be used to present different variables and a diagnostic screen sequence.

### Variable screens

If the Display Mode is set to Periodic, the device display shows a periodic sequence of user-chosen variables during operation. A new screen appears according to configured wireless update rate. The device display will also show ALERT PRESNT if at least one alert is present.

The transmitter can display the following variables:

**Figure 5-1: LCD Display Variables**




Source: https://www.emerson.com/documents/automation/manual-rosemount-3308-series-wireless-guided-wave-radar-3308a-en-77240.pdf, page 96

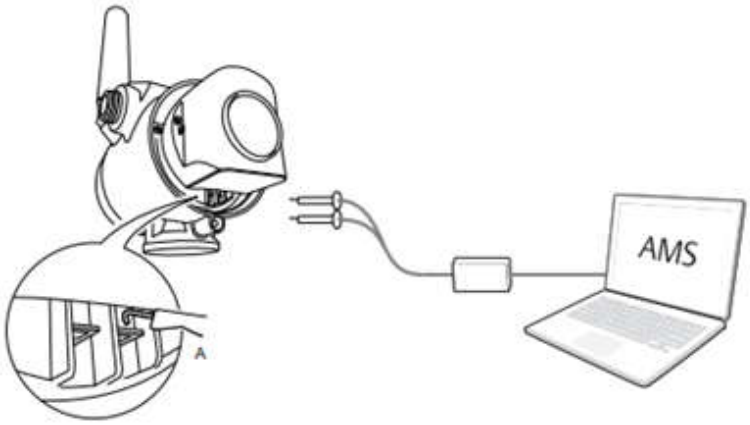
## HOW IT WORKS

WIRELESS COMMUNICATION | LONG BATTERY LIFE | QUICK AND EASY CONFIGURATION | ENHANCED SIGNAL STRENGTH | PROACTIVE MAINTENANCE

Wireless communication has been incorporated into the process industry with great success, enabling the right information to get to the user. The Emerson™ Wireless network is a self-organizing solution designed with security in mind. The wireless field instruments send data to a gateway, directly or routed through any of the wireless devices on the network. The WirelessHART communication protocol, which all our products use, includes built-in security that cannot be disabled and functionality that only lets the final device decrypt and utilize transmitted data.

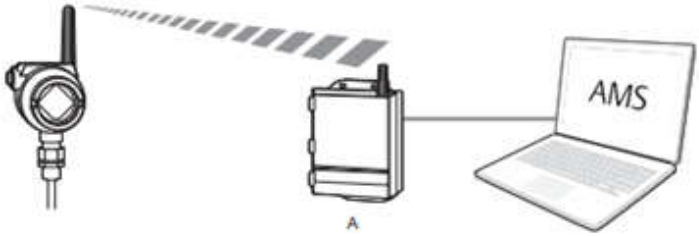
Source: https://www.emerson.com/en-us/automation/measurement-instrumentation/level/continuous-level-measurement/about-guided-wave-radar/rosemount-3308-wireless-level-transmitter

**Figure 4-1: Connect Point-to-Point using HART Modem**




*A. Communication terminals*

**Figure 4-2: Connect Wirelessly through the Wireless Gateway**




*A. Wireless Gateway*

Source: https://www.emerson.com/documents/automation/manual-rosemount-3308-series-wireless-guided-wave-radar-3308a-en-77240.pdf, page 77

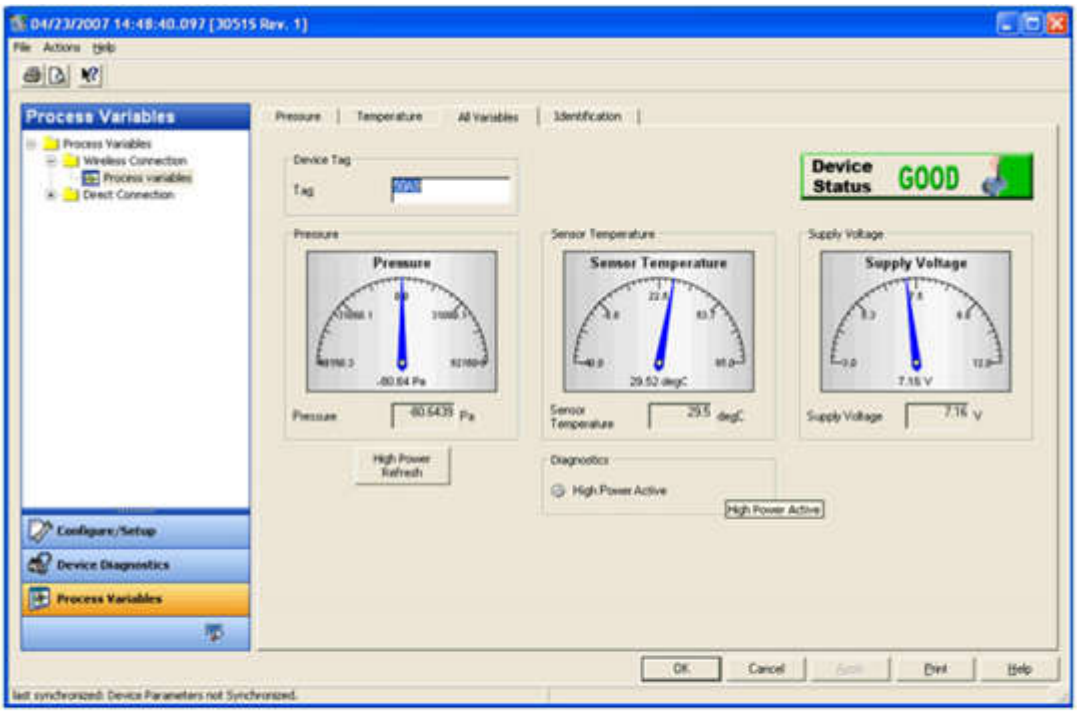
## How It Works

FASTER COMMISSIONING | ACCESS DEVICE HEALTH ANYWHERE | CONNECT FIELD DATA | PLAN WIRELESS NETWORKS | REDUCE CALIBRATION TIME

### Access Device Health Anywhere

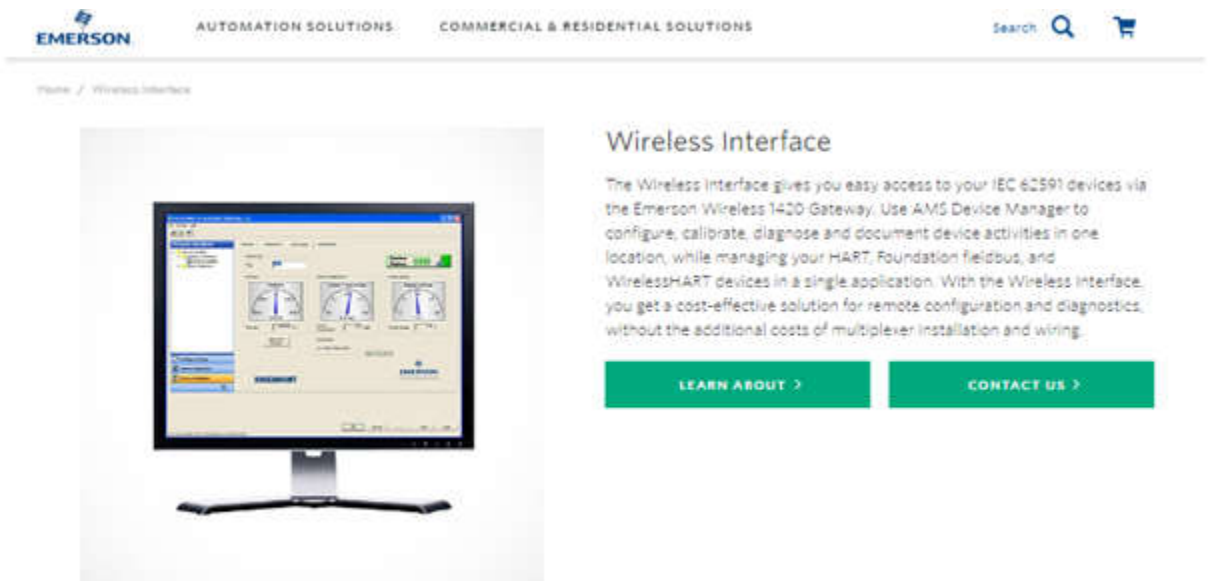
Through intuitive dashboards and focused alerts, quickly access the data you need to respond to issues effectively. AMS Device View extends your asset management capabilities by delivering device health and calibration status information through a browser-based interface. You gain insight into unhealthy devices from anywhere you have an internet connection.

Source: https://www.emerson.com/en-us/automation/asset-management/field-device-management/asset-management-software/ams-device-manager




*AMS Device Manager's enhanced graphical interface provides clear indications of device status and process variables, extending the benefits of Plantweb to WirelessHART devices.*

Source: https://www.emerson.com/documents/automation/product-data-sheet-wireless-interface-ams-en-38390.pdf, page 1




Source: https://www.emerson.com/en-us/catalog/ams-wireless-interface

24. The infringing products provide a display means for displaying an indication of said assigned status. For example, Rosemount 3308 Wireless Level Transmitter comprises an integrated display to present an indication (such as measured values and messages) for at least

one of the sensors based on the assigned status (such as positioning and/or level of the material to be measured). Further, the said products wirelessly transmit the level of a medium, interface level, etc. ("status") to an AMS Device Manager ("display means"). Certain aspects of this element are illustrated in the screenshots provided in connection with other allegations herein.

25. Details of infringement by the infringing products are provided in the claim chart attached as Exhibit B.

26. Defendant's actions complained of herein will continue unless Defendant is enjoined by this court.

27. Defendant's actions complained of herein are causing irreparable harm and monetary damage to Plaintiff and will continue to do so unless and until Defendant is enjoined and restrained by this Court.

28. Plaintiff is in compliance with 35 U.S.C. § 287.

**COUNT II**
**(INFRINGEMENT OF UNITED STATES PATENT NO. 7,834,744)**

29. Plaintiff incorporates paragraphs 1 through 28 herein by reference.

30. This cause of action arises under the patent laws of the United States and, in particular, under 35 U.S.C. §§ 271, et seq.

31. Plaintiff is the owner by assignment of the '744 Patent with sole rights to enforce the '744 Patent and sue infringers.

32. A copy of the '744 Patent, titled "Circuit Monitoring Device," is attached hereto as Exhibit C.

33. The '744 Patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

34. The claims of the '744 recite subject matter that is similar to that recited in the

claims of the '683 Patent (discussed above in connection with Count I). The specification of the '744 Patent discloses problems of prior systems and non-generic solutions in a manner similar to the specification of the '683 Patent (discussed above in connection with Count I).

35. The components recited in the claims (such as in claim 1 for example) are configured, such that they operate in a non-conventional manner.

36. The components recited in the claims (such as in claim 1 for example) are configured so as to allow a user to set customized ranges of values to be set as parameters of end-of-line modules (i.e., parameters of a circuit). Generic processors cannot provide this functionality. The '744 Patent specification clarifies that the claimed components, performing the claimed functionality, are not conventional or generic.

37. Collectively, the claimed embodiments in the '744 Patent provide new solutions to problems of traditional security monitoring systems. These solutions are enabled by non-generic components functioning in a non-conventional manner.

38. The '744 Patent solves a problem with the art that is rooted in computer technology. The '744 Patent does not merely recite the performance of some business practice known from the pre-Internet world along with the requirement to perform it on the Internet.

39. Upon information and belief, Defendant has infringed and continues to infringe one or more claims, including at least Claim 1, of the '744 Patent by making, using, importing, selling, and/or offering for sale, field devices, wireless systems, circuit monitoring devices, and/or components for such systems covered by one or more claims of the '744 Patent. Defendant causes infringement by its customers and users and encourages the use of accused devices through distribution, support and customer services. Defendant has infringed and continues to infringe the '744 Patent directly in violation of 35 U.S.C. § 271.

40. Regarding Claim 1, Defendant makes, uses, sells and/or offers for sale an apparatus for monitoring a circuit and for coupling to a central system. For example, Emerson provides a range of Industrial Wireless Technology products (such as Wireless Pressure Management products, Wireless Level Measurement products (used herein as exemplary products), Wireless Temperature Measurement products, etc.) for monitoring a circuit. Further, Emerson's Wireless Level Measurement products (such as Rosemount 3308 Wireless Level Transmitter - Guided Wave Radar, Rosemount 2160 Wireless Level Detector - Vibrating Fork, etc.) monitor the fill level of a medium (such as milk, water, etc.) using sensors (such as vibration sensor, conductive sensor, capacitive sensor, time domain reflectometry sensor (TDR sensor), etc.) which measure piezoelectric vibration, conductivity, capacitance, propagation delay, waveform reflections, strength of a signal ("parameter of an electrical circuit"). Infringing products and certain aspects of this element are illustrated in the screenshots provided in connection with other allegations herein.

41. Details of infringement by the infringing products are provided in the claim chart attached as Exhibit D.

42. Defendant's actions complained of herein will continue unless Defendant is enjoined by this court.

43. Defendant's actions complained of herein are causing irreparable harm and monetary damage to Plaintiff and will continue to do so unless and until Defendant is enjoined and restrained by this Court.

44. Plaintiff is in compliance with 35 U.S.C. § 287.

## COUNT III
## (INFRINGEMENT OF UNITED STATES PATENT NO. 8,816,869)

45. Plaintiff incorporates paragraphs 1 through 44 herein by reference.

46. This cause of action arises under the patent laws of the United States and, in particular, under 35 U.S.C. §§ 271, et seq.

47. Plaintiff is the owner by assignment of the '869 Patent with sole rights to enforce the '869 Patent and sue infringers.

48. A copy of the '869 Patent, titled "Circuit Monitoring Device," is attached hereto as Exhibit E.

49. The '869 Patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

50. The claims of the '869 recite subject matter that is similar to that recited in the claims of the '683 Patent (discussed above in connection with Count I). The specification of the '869 Patent discloses problems of prior systems and non-generic solutions in a manner similar to the specification of the '683 Patent (discussed above in connection with Count I).

51. The components recited in the claims (such as in claim 1 for example) are configured, such that they operate in a non-conventional manner.

52. The components recited in the claims (such as in claim 1 for example) are configured so as to allow a user to set customized ranges of values to be set as parameters of end-of-line modules (i.e., parameters of a circuit). Generic processors cannot provide this functionality. The '869 Patent specification clarifies that the claimed components, performing the claimed functionality, are not conventional or generic.

53. Collectively, the claimed embodiments in the '869 Patent provide new solutions to problems of traditional security monitoring systems. These solutions are enabled by non-generic components functioning in a non-conventional manner.

54. The '869 Patent solves a problem with the art that is rooted in computer

technology. The '869 Patent does not merely recite the performance of some business practice known from the pre-Internet world along with the requirement to perform it on the Internet.

55. Upon information and belief, Defendant has infringed and continues to infringe one or more claims, including at least Claim 1, of the '869 Patent by making, using, importing, selling, and/or offering for sale, field devices, wireless systems, circuit monitoring devices, and/or components for such systems covered by one or more claims of the '869 Patent. Defendant causes infringement by its customers and users and encourages the use of accused devices through distribution, support and customer services. Defendant has infringed and continues to infringe the '869 Patent directly in violation of 35 U.S.C. § 271.

56. Regarding Claim 1, Defendant makes, uses, sells and/or offers for sale a device for monitoring the status of a circuit based on a measurable parameter of the circuit For example, Emerson provides a range of Industrial Wireless Technology products (such as Wireless Pressure Management products, Wireless Level Measurement products (used herein as exemplary products), Wireless Temperature Measurement products, etc.) for monitoring a circuit. Further, Emerson's Wireless Level Measurement products (such as Rosemount 3308 Wireless Level Transmitter - Guided Wave Radar, Rosemount 2160 Wireless Level Detector - Vibrating Fork, etc.) monitor the fill level of a medium (such as milk, water, etc.) using sensors (such as vibration sensor, conductive sensor, capacitive sensor, time domain reflectometry sensor (TDR sensor), etc.) which measure piezoelectric vibration, conductivity, capacitance, propagation delay, waveform reflections, strength of a signal ("parameter of an electrical circuit"). Infringing products and certain aspects of this element are illustrated in the screenshots provided in connection with other allegations herein.

57. Details of infringement by the infringing products are provided in the claim

chart attached as Exhibit F.

58. Defendant's actions complained of herein will continue unless Defendant is enjoined by this court.

59. Defendant's actions complained of herein are causing irreparable harm and monetary damage to Plaintiff and will continue to do so unless and until Defendant is enjoined and restrained by this Court.

60. Plaintiff is in compliance with 35 U.S.C. § 287.

**COUNT IV**
**(INFRINGEMENT OF UNITED STATES PATENT NO. 8,912,893)**

61. Plaintiff incorporates paragraphs 1 through 60 herein by reference.

62. This cause of action arises under the patent laws of the United States and, in particular, under 35 U.S.C. §§ 271, et seq.

63. Plaintiff is the owner by assignment of the '893 Patent with sole rights to enforce the '893 Patent and sue infringers.

64. A copy of the '893 Patent, titled "Circuit Monitoring Device," is attached hereto as Exhibit G.

65. The '893 Patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

66. The claims of the '893 recite subject matter that is similar to that recited in the claims of the '683 Patent (discussed above in connection with Count I). The specification of the '893 Patent discloses problems of prior systems and non-generic solutions in a manner similar to the specification of the '683 Patent (discussed above in connection with Count I).

67. The components recited in the claims (such as in claim 1 for example) are configured, such that they operate in a non-conventional manner.

68. The components recited in the claims (such as in claim 1 for example) are configured so as to allow a user to set customized ranges of values to be set as parameters of end-of-line modules (i.e., parameters of a circuit). Generic processors cannot provide this functionality. The '893 Patent specification clarifies that the claimed components, performing the claimed functionality, are not conventional or generic.

69. Collectively, the claimed embodiments in the '893 Patent provide new solutions to problems of traditional security monitoring systems. These solutions are enabled by non-generic components functioning in a non-conventional manner.

70. The '893 Patent solves a problem with the art that is rooted in computer technology. The '893 Patent does not merely recite the performance of some business practice known from the pre-Internet world along with the requirement to perform it on the Internet.

71. Upon information and belief, Defendant has infringed and continues to infringe one or more claims, including at least Claim 1, of the '893 Patent by making, using, importing, selling, and/or offering for sale, field devices, wireless systems, circuit monitoring devices, and/or components for such systems covered by one or more claims of the '893 Patent. Defendant causes infringement by its customers and users and encourages the use of accused devices through distribution, support and customer services. Defendant has infringed and continues to infringe the '893 Patent directly in violation of 35 U.S.C. § 271.

72. Regarding Claim 1, Defendant makes, uses, sells and/or offers for sale a circuit monitoring device. For example, Emerson provides a range of Industrial Wireless Technology products (such as Wireless Pressure Management products, Wireless Level Measurement products (used herein as exemplary products), Wireless Temperature Measurement products, etc.) for monitoring a circuit. Further, Emerson's Wireless Level Measurement products (such

as Rosemount 3308 Wireless Level Transmitter - Guided Wave Radar, Rosemount 2160 Wireless Level Detector - Vibrating Fork, etc.) monitor the fill level of a medium (such as milk, water, etc.) using sensors (such as vibration sensor, conductive sensor, capacitive sensor, time domain reflectometry sensor (TDR sensor), etc.) which measure piezoelectric vibration, conductivity, capacitance, propagation delay, waveform reflections, strength of a signal ("parameter of an electrical circuit"). Infringing products and certain aspects of this element are illustrated in the screenshots provided in connection with other allegations herein.

73. Details of infringement by the infringing products are provided in the claim chart attached as Exhibit H.

74. Defendant's actions complained of herein will continue unless Defendant is enjoined by this court.

75. Defendant's actions complained of herein are causing irreparable harm and monetary damage to Plaintiff and will continue to do so unless and until Defendant is enjoined and restrained by this Court.

76. Plaintiff is in compliance with 35 U.S.C. § 287.

## PRAYER FOR RELIEF

WHEREFORE, Plaintiff asks the Court to:

(a) Enter judgment for Plaintiff on this Complaint on all causes of action asserted herein;

(b) Award Plaintiff past and future damages, costs, and expenses resulting from Defendant's infringement in accordance with 35 U.S.C. § 284;

(c) Award Plaintiff pre-judgment and post-judgment interest and costs; and

(d) Award Plaintiff such further relief to which the Court finds Plaintiff entitled under law or equity.

Dated: January 9, 2020

Respectfully submitted,

/s/ Jay Johnson

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**ATTORNEYS FOR PLAINTIFF**

# EXHIBIT A

# EXHIBIT B

# EXHIBIT C

# EXHIBIT D

# EXHIBIT E

# EXHIBIT F

# EXHIBIT G

# EXHIBIT H